

REMARKS

Claim Rejections – 35 U.S.C. §102

Claims 12 and 15-21 have been rejected under 35 U.S.C. §102(e) as anticipated by Tan et al., (U.S. Patent No. 6,680,705). The rejection is respectfully traversed.

Tan discloses a PIFA multi-band antenna having a ground element, a main radiating element and a capacitive feed element connect to an antenna feed. Additional second elements are provided such that the bandwidth or number or resonant frequencies of the antenna can be increased without increasing the overall dimensions of the antenna. With reference to Fig. 8 of Tan, the Examiner states that secondary elements 601, 801 are equivalent to the claimed parasitic transmitters, which are located marginal to the planar patch antenna and embodied so as to be free of high-frequency interface. Moreover, the Examiner states that Tan discloses a “line-type conductor” since it “is not well known in the art” and therefore interpreted “as a conductor long in proportion to its breadth.” Applicants respectfully disagree.

1. Located Marginal to Planar Patch Antenna

The phrase “located marginal to the planar patch antenna” refers to the parasitic transmitters arranged closely adjacent to the planar patch antenna, as illustrated in Figs. 1-4 of the instant invention and the first full paragraph on page 3 of the original specification. In Tan, on the other hand, the secondary elements (parasitic transmitters) 601, 801 are not located marginal (i.e. adjacent) to the planar patch antenna, but rather located on the planar patch antenna (i.e. within the boundaries of the antenna), and in fact located within a gap between the main radiating element (Fig 8).

2. Free of a High-Frequency Interface

The Examiner appears to gloss over the limitation in the claims that the parasitic transmitters are free of a high-frequency interface, and simply points to Figure 8 as disclosing such limitation. However, there is no teaching in Tan that the secondary elements 601, 801 are free of a high-frequency interface. Rather, Tan states that using the secondary elements, the bandwidth or number of resonant frequencies of the antenna can be increased without increasing

the overall dimensions of the antenna (abstract), and shows the return loss of an antenna having at least a secondary element to create an additional resonance. There is, however, no teaching of being free of a high-frequency interface.

3. Parasitic Transmitters are Line-Type Conductors

The Examiner states that “Applicant does not disclose the meaning of ‘line-type conductor’ in the Specification and the term ‘line-type conductor’ is not well known in the art, therefore examiner interprets ‘line-type conductor’ as a conductor long in proportion to its breadth....” Applicants respectfully disagree. The term “line-type” conductor is well known in the art. U.S. Patent No. 6,992,635 to Nishiyama is exemplary of a Microstrip Line Type Planar Array Antenna, and demonstrates that this term is well known in the art. Specifically, col. 1, lines 401-41 of Nishiyama state that each “of antenna elements 2a to 2d is an antenna element of a microstrip-line type....”

Tan, on the other hand, fails to disclose parasitic transmitters that are arranged as line-type conductor structures, as required by the claimed invention. Rather, the secondary element is formed, for example, by cutting away from a corner of a rectangular plate during the tuning process (col. 4, lns. 54-56).

Claim Rejections – 35 U.S.C. §103

Claims 2 and 3 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Tan, in view of Pederson, Gert Frolund (EP 1067627). The rejection is respectfully traversed. Pederson is cited as disclosing sharing the ground connection to the parasitic radiators. However, the combination fails for at least the same reasons presented in the arguments above.

Allowable Subject Matter

Claim 22 is objected to as being dependent upon a rejected base claim, but be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In view of the above, Applicants submit that this application is in condition for allowance. An indication of the same is solicited. The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing, referencing Attorney Docket No. 119065-035.

Respectfully submitted,

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